

Introduction

Aquatic plant pests pose a major threat to the quality of the Bay of Plenty region's wetlands, lakes and waterways. Once established, aquatic plant pests can form dense beds of vegetation that impede drainage, encourage stagnation and silting, aggravate the effects of flooding and degrade water quality. Aquatic plant pests have the potential to compete with and displace native plants, and restrict recreational activities such as fishing, boating or swimming.

Control of established infestations can be costly and intervention can readily make the problem worse. The ramifications of any proposed treatment should be carefully evaluated prior to any control being carried out. Options for control include mechanical removal, (with weed harvesters or suction dredges), chemical control with herbicide, manipulation of the habitat by drainage or weed mats and biological control with agents such as Grass Carp.

Under Environment B-O-P's Plant Pest Management Strategy, Plant Pests including Aquatic Plant Pests have been categorised according to the type and level of intervention that will be undertaken. The Strategy was developed by assessment of the weediness of each plant and after consultation with the public and Government agencies.

Environment B-O-P Plant Pest Officers are available to help identify and advise on appropriate control measures for Aquatic Plant Pests. All aquatic plant pests in this fact sheet are banned from sale, propagation and distribution.

National Total Control Plant Pests

National Total Control Plant Pests are plants of national significance. Three Aquatic Plant Pests: Water Lettuce, Salvinia and Water Hyacinth fall into this category and are declared as notifiable and unwanted organisms. Land occupiers have a legal obligation to report the presence of these plants to the Ministry of Agriculture and Forestry or to Environment B-O-P. All eradication work is funded by the Ministry of Agriculture and Forestry.

Water Lettuce (*Pistia stratiotes*) - A free floating, mat forming perennial aquatic plant, but lacking conspicuous flowers. Has been eradicated from all known sites in New Zealand.

Salvinia (*Salvinia molesta*) - A perennial free floating fern that has a branched horizontal stem which lies just below the water surface. Each node of the stem gives rise to a pair of opposite floating leaves and a finely dissected, submerged root organ which is considered to be a modified leaf. The foliage is green to golden brown. Leaves are frost sensitive. Salvinia can spread extremely rapidly.



Salvinia

Water Hyacinth (*Eichhornia crassipes*) - A free floating, mat-forming, perennial aquatic plant. Each plant consists of a free-floating rosette of leaves and a thick mass of feathery roots hanging in the water. Clusters of distinctive, mauve-blue flowers are produced. Spread is by both seeds and vegetative means; spread can also be extremely rapid.



Water Hyacinth

Total Control Plant Pests

These are Plant Pests of restricted abundance that are required to be controlled wherever the plants are present, or in the area defined by Environment B·O·P's Plant Pest Management Strategy. Four Aquatic Plant Pests: Alligator weed, Parrots Feather, Senegal Tea and Yellow Flag fall into this category. Regional assistance is available for the control of Alligator Weed.

Alligator Weed (*Alternanthera philoxeroides*) - A sprawling perennial, rooting along the creeping stem, that forms dense mats of vegetation up to two metres tall. It has a wide habitat range, being capable of growing on saline, estuarine areas as well as fresh water and into relatively dry pasture. Leaves are 5-13 cm long. Flowers occur as a single clover like flower head up to 13 mm in diameter.



Alligator Weed

Parrots Feather (*Myriophyllum aquaticum*) - A perennial herb with whorled, feathery leaves on stems up to two metres long, which form vigorous mats of tangled stems or carpets of short growth where water has receded. Parrots Feather spreads by stem fragmentation i.e. no seed is produced. Parrots Feather is a Total Control Plant Pest only within the Rangitaiki drainage district, due to its severe impact on drainage canals.



Parrots Feather

Senegal Tea (*Gymnocoronis spilanthoides*) - A perennial herb growing to 1.5 metres tall. Young stems are ridged. Leaves opposite, shiny and spear-like. Leaf stalks join across the stem. Dormant in winter. Usually restricted to marshy soils and still or slow-flowing water where it can grow as a floating mat extending from the margins of the water body.



Senegal Tea

Yellow Flag (*Iris pseudacorus*) - An evergreen semi-aquatic perennial rhizomatous Iris. Very leafy, it grows in clumps up to one metre high producing conspicuous yellow flowers in spring. Flowers are up to 120mm in diameter and are typically Iris like in form. Spread is by seed or by movement of rhizomes. Yellow Flag can grow to form dense infestations that completely exclude other desirable vegetation.



Yellow Flag

National Surveillance Plant Pests

These plant pests are considered of national significance and are a potential problem within the Bay of Plenty Region. Land occupiers are not required to control these plant pests but are encouraged to do so at their discretion. They are banned from sale, propagation and distribution.

Bladderwort (*Utricularia gibba*) - A submerged, unattached, perennial with stems up to 50cm long. Yellow flowers with brown markings.



Bladderwort

Bogbean (*Menyanthes trifoliata*) - A perennial bog plant that has long, light-green, hairless leaves with whitish/pink flowers and round orange seeds. Bogbean is thought to have been eradicated from New Zealand.



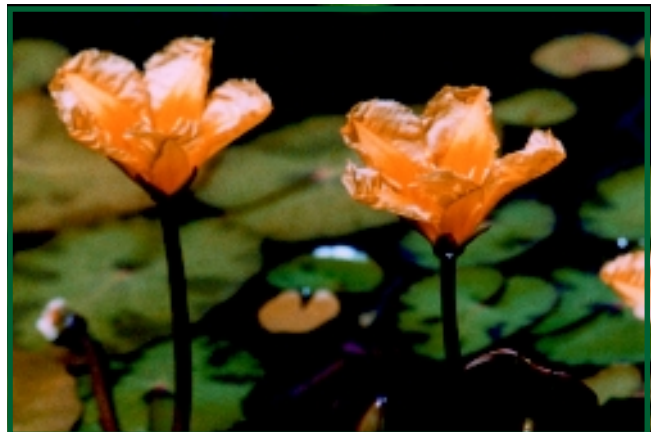
Bogbean (insert photo - Bogbean flower)

Clasped Pondweed (*Potamogeton perfoliatus*) - A submerged, brownly coloured perennial with long, trailing, leafy, rounded stems up to 3 metres long. Clasped Pondweed is thought to have been eradicated from New Zealand.



Clasped Pondweed

Fringed Water Lily (*Nymphaoides peltata*) - A perennial with floating leaves 5-10cm in diameter and upright yellow flowers. Produces floating seeds adapted for spread by waterfowl.



Fringed Water Lily

Hornwort (*Ceratophyllum demersum*) - A widespread Aquatic weed with dark green, free-floating dense growths. Stems up to 10 metres long with narrow, whorled leaves.



Hornwort

Hydrilla (*Hydrilla verticillata*) - Currently confined to the Hawkes Bay Region, Hydrilla is a submerged perennial with stems up to 6 metres long. Leaves are arranged in whorls of 3-8 and have obvious toothed edges.



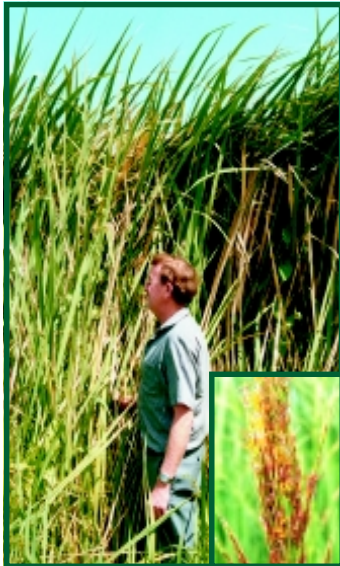
Hydrilla

Phragmites (*Phragmites australis*) - A robust perennial reedgrass, to 3m tall, with hollow leafy stems. Plume like seed head at first green in colour then turning brown .



Phragmites

Manchurian Wild Rice (*Zizania latifolia*) - A coarse, perennial grass up to 3-4 metres tall, with large rhizomes.



Manchurian Wild Rice
(Insert Photo: Manchurian Wild Rice Seed-head)

Water Primose (*Ludwiga peploides ssp. montevidensis*) - A perennial wetland plant up to 3 metres tall with yellow, five-petalled flowers.



Water Primose (Insert Photo: Water Primose Flower)

Sagittaria (*Sagittaria graminea ssp. platyphylla*) - A herb up to 1 metre tall with fleshy rhizomes, triangular stems and emergent, lanceolate to ovate leaves.



Sagittaria

Yellow Water Lily (*Nuphar lutea*) - A yellow flowered water lily growing from large rhizomes with thick floating heart shaped waxy leaves, and small yellow flowers.



Yellow Water Lily

Regional Surveillance Plant Pests

These are plant pests of regional significance which were formerly present in the region but are now largely eradicated. Continued surveillance of former sites is required. Any new sites will be investigated and control carried out by Environment B·O·P.

Eel Grass (*Vallisneria spiralis*, *Vallisneria gigantea*) - Believed to be eradicated from known sites in the Bay of Plenty, Eel Grass is an attached, submerged, stoloniferous perennial with strap-like leaves up to 5.5 metres long arising from stout rhizomes. Infestations generally result from deliberate plantings.



Eel Grass

Marshwort (*Nymphoides geminata*) - A waterlily-like perennial with branched stolons up to 1 metre long. Leaves are broadly ovate to rounded and 3-8cm long. Marshwort is most clearly distinguished by its bright yellow, five-lobed flowers that are borne above the water surface on long stalks. No seed is produced and new infestations are a result of deliberate planting.



Marshwort

Water Poppy (*Hydrocleys nymphoides*) - Waterlily-like, stoloniferous perennial with tufts of thick shiny floating leaves and a distinctive solitary yellow flower. Water Poppy flowers have three petals and are a definite poppy shape. No viable seed is produced and any new sites will be the result of deliberate planting.



Water Poppy

High Risk Plant Pests

These are Plant Pests that have been identified as being potential or actual, high-risk weeds that cannot be effectively controlled for the following reasons:

- lack of effective control options
- a limited understanding of the exact extent of the problem that the plant poses
- the costs of control may be unreasonably high.

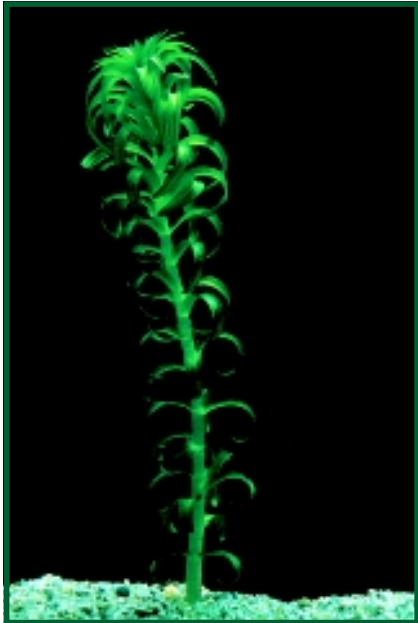
Environment B·O·P is currently gathering information on these plants that may be used in future control operations.

Egeria (*Egeria densa*) - Widespread throughout the region Egeria is a submerged, much-branched, perennial aquatic that thrives in turbid and nutrient-enriched waters. The leaves are arranged in whorls of 4 or 5, and are very dense and leafy. Egeria forms an extremely dense growth beneath the water surface. Flowers may appear on or above the water surface in mid summer and autumn and have three white petals and yellow anthers. Egeria does not produce viable seed in New Zealand.



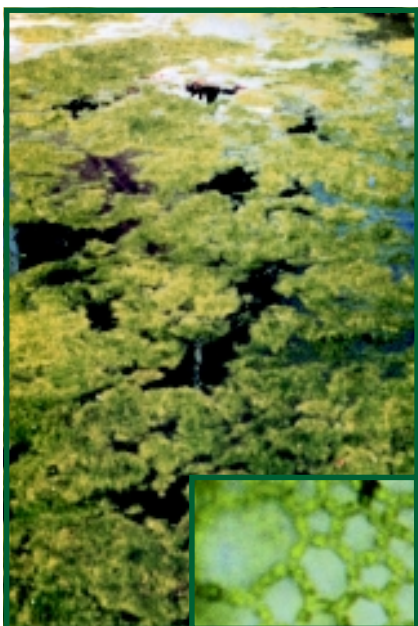
Egeria

Lagarosiphon (*Lagarosiphon major*) - Widespread throughout the Bay of Plenty region, this rooted submerged aquatic grows to form dense beds of vegetation. Stems grow up to 5 metres long, leaves are arranged in a spiral up the stem and are strongly curved. Leaves are about 16 mm long and 2 mm wide, flowers are small and inconspicuous. Lagarosiphon does not produce viable seed and spread is by stem fragmentation.



Lagarosiphon

Water Net (*Hydrodictyon reticulatum*) - An algae that was once a serious problem in the Bay of Plenty and currently in a state of natural decline, waternet may emerge as a future problem. The individual cells of Water Net are joined to form a five or six-sided mesh structure that gives Water Net its distinctive net appearance.



Water Net
(Insert Photo:
Individual Water
Net Cells)

For further information contact a local Environment B·O·P Plant Pest Officer on freephone 0800 ENVBOP (368 267)

Environment B·O·P offices located at:

6 Rata Street	Mt Maunganui
1125 Arawa Street	Rotorua
5 Quay Street	Whakatane
25 Church Street	Opotiki

Email: info@envbop.govt.nz

This fact sheet was prepared by Richard Mallinson

Photographs by
Paul Champion, Rohan Wells, John Clayton (NIWA)
Peter Joynt (Northland Regional Council)
Walter Stahel (Environment B·O·P)

Environment B·O·P
P O Box 364
WHAKATANE